

Patent claims

1. A contact arrangement having a battery (1) and an electrical line (4), the battery having a connection terminal (2) for connecting the electrical line (4), the electrical line (4) having a connection piece (3) for connection to the connection terminal (2), the connection piece (3) or the connection terminal (2) having a permanent magnet (7),
characterized in that the connection terminal (2) or the connection piece (3) has an electromagnet (8) having a core (18) and a magnet coil (17), in that the permanent magnet (7) of the connection terminal (2) or the connection piece (3) is associated with the electromagnet (8) of the connection piece (3) or of the connection terminal (2), the permanent magnet (7) exerting a magnetic force for the purpose of retaining or repelling the core (18), and in that the electromagnet (8) counteracts the force effect of the permanent magnet (7) owing to the supply of current, such that it is possible for the connection terminal (2) to attract or repel the connection piece (3).

2. The arrangement as claimed in claim 1, characterized in that a plurality of permanent magnets (7) are arranged in the connection terminal (2) of the battery (1) and/or in the connection piece (3) of the line (4), in that a plurality of electromagnets (8) are arranged in the connection terminal (2) and/or in the connection piece (3), in that the permanent magnets (7) are arranged symmetrically around an electrical contact piece (6, 5) of the connection terminal (2) and/or of the connection piece (3), in that the electromagnets (8) are arranged symmetrically around the electrical contact piece (5, 6) of the connection terminal (2) and/or of the connection piece (3), the permanent magnets (7) of the connection terminal (2) and/or of the connection piece (3) being associated with the

electromagnets (8) of the connection piece (3) and/or of the connection terminal (2).

3. The arrangement as claimed in claim 2,
5 characterized in that only electromagnets are arranged in the connection piece (3) or in the connection terminal (2) and only permanent magnets (7) are arranged in the connection piece (3) or in the connection terminal (2).

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4. The arrangement as claimed in one of claims 1 to 3, characterized in that the connection piece (3) has an electrically conductive contact piece (6), in that the connection terminal (2) has an electrically
15 conductive contact piece (5), in that the contact pieces (5, 6) have contact faces, and in that, in the contact state, the contact faces of the contact pieces (5, 6) bear against one another and make electrically conductive contact with one another.

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5. The arrangement as claimed in one of claims 1 to 4, characterized in that the permanent magnets (7) associated with one another in the connection piece (3) and the connection terminal (2) and the cores (18) of
25 the electromagnets (8) have magnetic polarizations which bring about mutually repelling magnetic forces.

6. The arrangement as claimed in one of claims 1 to 4, characterized in that the permanent magnets (7) and
30 cores (18) of the electromagnets (8) associated with one another in the connection piece (3) and the connection terminal (2) have magnetic polarizations which bring about mutually attracting magnetic forces.

35 7. The arrangement as claimed in one of claims 1 to 6, characterized in that the connection terminal (2) or the connection piece (3) has four permanent magnets (7), which are arranged on a circle around the

respective contact piece (6, 5) of the connection terminal (2) or of the connection piece (3).

8. The arrangement as claimed in one of claims 1 to 5 7, characterized in that the permanent magnets (7) and/or the magnet cores (18) of the electromagnets (8) are set back from the contact face of the connection piece or of the connection terminal (2) via a spacer layer (14).

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9. The arrangement as claimed in one of claims 1 to 8, characterized in that, in the contact state, only the contact pieces of the connection piece (3) and of the connection terminal (2) come into contact with one 15 another.

10. The arrangement as claimed in one of claims 1 to 9, characterized in that a connection piece (3) or a connection terminal (2) has a plurality of 20 electromagnets (8), and in that the magnet coils (17) of the electromagnets (8) are connected in series, and contact can be made with them via two connections (12, 13) on the connection piece (3) or on the connection terminal (2).

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11. A connection piece for an electrical line as claimed in one of the preceding claims.

12. A connection terminal for a battery as claimed in 30 one of claims 1 to 10.